

CLAIMS

What is claimed is:

- 1 1. A method for managing access to a resource that is accessible to a plurality of entities,
2 the method comprising the steps of:
 - 3 for each entity of said plurality of entities, maintaining, local to said entity,
4 data that indicates whether any other entity of said plurality of entities
5 has an exclusive lock on said resource;
 - 6 for each entity of said plurality of entities that seeks to acquire a shared lock,
7 performing the steps of:
 - 8 checking the data that is local to the entity;
 - 9 if the data indicates that an exclusive lock has not been granted to any
10 one of the other entity of said plurality of entities, then the
11 entity acquiring said shared lock without receiving a lock grant
12 from a resource master of said resource; and
 - 13 if the data indicates that an exclusive lock has been granted to any one
14 of the other entity of the plurality of entities, then the entity
15 acquiring said shared lock only after said exclusive lock is
16 released by the entity that has been holding said exclusive lock.
- 1 2. The method of Claim 1 wherein the entity acquires said shared lock without
2 communication with the resource master of the resource.

1 3. The method of Claim 1 wherein the step of the entity acquiring said shared lock only
2 after the exclusive lock is released is performed by the step of continuing checking the
3 data that is local to the entity until that data indicates that the exclusive lock has been
4 released by the entity that has been holding the exclusive lock.

1 4. The method of Claim 1 wherein the step of the entity acquiring said shared lock only
2 after the exclusive lock is released is performed after a step of receiving a message
3 from the resource manager notifying that the entity is allowed to acquire said shared
4 lock.

1 5. The method of Claim 1, upon the exclusive lock has been released by the entity that
2 has been holding the exclusive lock, performing the step of updating each data of the
3 plurality of entities to reflect that none of the plurality of entities is holding an
4 exclusive lock.

1 6. The method of Claim 5 wherein the step of updating is initiated by the resource
2 manager that broadcasts messages to the plurality of entities for each entity of the
3 plurality of entities to modify the data corresponding to the each entity.

1 7. The method of Claim 1 wherein an entity of said plurality of entities is a database
2 server.

1 8. A method for managing access to a resource that is accessible to a plurality of entities,
2 the method comprising the steps of:

3 for each entity of said plurality of entities, maintaining, local to said entity,
4 data that indicates whether any other entity of said plurality of entities
5 has an exclusive lock on said resource;

6 for each entity of the plurality of entities that seeks to acquire an exclusive
7 lock, performing the steps of:

8 requesting, from a resource manager, said exclusive lock for said
9 entity; wherein said resource manager manages access to said
10 resource;

11 if no conflicting lock is being held by any other entity of the plurality
12 of entities, then
13 said entity acquiring said exclusive lock, and
14 updating the data of the plurality of entities to reflect that an
15 exclusive lock is being held by one of the plurality of
16 entities.

1 9. The method of Claim 8 wherein, upon recognizing that no conflicting lock is being
2 held by any of the entity of the plurality of entities, then the resource manager
3 allowing the entity that seeks to acquire an exclusive lock to acquire that exclusive
4 lock.

1 10. The method of Claim 8, wherein, if an exclusive lock is being held by any entity of the
2 plurality of entities, then indicating to the entity that is holding said exclusive lock that
3 another entity of the plurality of entities is waiting for a lock.

1 11. The method of Claim 10, wherein, upon said exclusive lock is being released by the
2 entity that is holding said exclusive lock, indicating to the lock manager that said
3 exclusive lock has been released by the entity that is holding said exclusive lock.

1 12. The method of Claim 8, wherein, if a shared lock is being held by any entity of the
2 plurality of entities, then indicating to all entities that are holding a shared lock that an
3 entity of the plurality of entities is waiting for a lock.

1 13. The method of Claim 12 wherein each entity of all entities that is holding a shared
2 lock, upon releasing said shared lock, indicates to said lock manager that the
3 corresponding shared lock that is held by that entity has been released.

1 14. The method of Claim 8 wherein an entity of the plurality of entities is a database
2 server.

1 15. A computer-readable medium carrying instructions for managing access to a resource
2 that is accessible to a plurality of entities, the instructions including instructions for
3 performing the steps of:

4 for each entity of said plurality of entities, maintaining, local to said entity,
5 data that indicates whether any other entity of said plurality of entities
6 has an exclusive lock on said resource;

7 for each entity of said plurality of entities that seeks to acquire a shared lock,
8 performing the steps of:

9 checking the data that is local to the entity;

10 if the data indicates that an exclusive lock has not been granted to any
11 one of the other entity of said plurality of entities, then the
12 entity acquiring said shared lock without receiving a lock grant
13 from a resource master of said resource; and
14 if the data indicates that an exclusive lock has been granted to any one
15 of the other entity of the plurality of entities, then the entity
16 acquiring said shared lock only after said exclusive lock is
17 released by the entity that has been holding said exclusive lock.

1 16. The computer-readable medium of Claim 15 wherein the entity acquires said shared
2 lock without communication with the resource master of the resource.

1 17. The computer-readable medium of Claim 15 wherein the step of the entity acquiring
2 said shared lock only after the exclusive lock is released is performed by the step of
3 continuing checking the data that is local to the entity until that data indicates that the
4 exclusive lock has been released by the entity that has been holding the exclusive
5 lock.

1 18. The computer-readable medium of Claim 15 wherein the step of the entity acquiring
2 said shared lock only after the exclusive lock is released is performed after a step of
3 receiving a message from the resource manager notifying that the entity is allowed to
4 acquire said shared lock.

1 19. The computer-readable medium of Claim 15 further including instructions for
2 updating, in response to the exclusive lock being released by the entity that has been
3 holding the exclusive lock, each data of the plurality of entities to reflect that none of
4 the plurality of entities is holding an exclusive lock.

1 20. The computer-readable medium of Claim 19 wherein the step of updating is initiated
2 by the resource manager that broadcasts messages to the plurality of entities for each
3 entity of the plurality of entities to modify the data corresponding to the each entity.

1 21. The computer-readable medium of Claim 15 wherein an entity of said plurality of
2 entities is a database server.

1 22. A computer-readable medium carrying instructions for managing access to a resource
2 that is accessible to a plurality of entities, the instructions including instructions for
3 performing the steps of:

4 for each entity of said plurality of entities, maintaining, local to said entity,
5 data that indicates whether any other entity of said plurality of entities
6 has an exclusive lock on said resource;

7 for each entity of the plurality of entities that seeks to acquire an exclusive
8 lock, performing the steps of:

9 requesting, from a resource manager, said exclusive lock for said
10 entity; wherein said resource manager manages access to said
11 resource;